OFFICE OF THE STATE FIRE MARSHAL
THE L OCCUPANCY TASK FORCE

Friday July 21, 2017
1:00 P.M. – 4:00 P.M.

Office of the State Fire Marshal
1131 S Street, Sacramento, CA 95811

MEETING MINUTES

Attendees:

Greg Andersen, Division Chief, OSFM
Crystal Sujeski, OSFM
Caryn Petty, OSFM
Reinhard Hanselka, CRD
Lily Rasovsky, Gilead
Eric Stocker, Gilead
Patrick Daley, Gilead
Ellen Ackerman, GEI/Tarston
Gloria Magliari, DGA
Dale Saunders, UC Irvine
Steve Rusconi, AIDI/Therma
Gale Bate, code resource
Steve Huang, Genentech
Christine Reed
Christina DaSilva
Luis DaSilva
Aaron McCarthy
Susan Eschweiler
Jeff Tarter
James Gibson
Jim Patterson
Paige McKibbin
Kevin Reinertson

(Apologies if others may have joined either on Skype or on the conference line that were missed in the attendees list)

A. Meeting introduction and overview- Thank you for participating

- **i.** The L occupancy is a California-specific occupancy created, initially, as an H8 occupancy for laboratories in high-rise buildings via a task group. Adoption of the 2007 California code expanded the L occupancy design options beyond schools and universities for use above the 3rd floor. This L occupancy remains a "design option" that needs clarity in code for today's needs that were not envisioned to accommodate a 20 story plus building.
- **ii. Brain storming ideas-**
  1. Clarify that this is a design option see code interpretation 08-028
  2. Look at each section to review if it is applicable today as it was in the past
  3. Lab suites and the challenges to conform to the practical use for university

4. Transport of hazardous materials via the elevator – restrictions are too (THIS IS NOT COMPLETE STATEMENT)

iii. Additional information from attendees notes that expanding beyond the university realm is important as private industry "should not be penalized" and "should be able to use their building(s) above the third floor."
iv. The purpose of this meeting to come to the Fire Marshal with items to be considered for the upcoming code cycle. Final proposals are due the end of June 2018.
v. Proposed discussion regarding "rated corridors" and their presence in L occupancies
vi. The other Laboratory occupancies
vii. Establish plan for preparing recommendations and review

B. **Discussion Topics** – general consensus opts for a section-by-section review of the Group L text of the 2016 California Building Code.

C. **453.1 Scope**
   i. Group proposed addition of "design option" to this section.

D. **453.2 Definitions**
   - Definition – add something that references group L occupancies that contain hazardous materials
   - NFPA 45 reference to that definition
   - Hazards lab vs nonhazardous lab
   - Ref 313
   - Lab suite or group L what is the difference? Rated wall requirements
   - What is the intent of story and below grade plane as it pertains to a story?

   i. Include "laboratory," "lab suite." Remove [F].
   ii. current definitions of "Laboratory" and "Laboratory Suite."
      1. Laboratory can be used for all kinds of things that don't contain haz mat. Add something in "Laboratory" referencing L occupancies.
      2. may alleviate the mislabeling of rooms. For example, Apple calls their work rooms "labs" but they have nothing to do with haz mat.
      3. NFPA 45 definition of "laboratory" includes handling and use of chemicals which may be more what we intend. Maybe we align more with the NFPA definition.
      4. We also need to consider "wet" versus "dry labs.
      5. Have L occupancy default to quantities or default to a B.
      6. California Building Code addresses fire and life safety issues. Hazards, while related, are not the same.
      7. Because "Lab" must be labeled on plans, having some sort of "hazardous" notation would be helpful.
      8. Webster Dictionary definition of "Laboratory"
         a. Dictionary doesn't speak to the hazards we are trying to address
      9. We need to make clear to the enforcing agency what the hazards are using parenthesis. Example, "Hazardous Materials,"

E. **453.3 Laboratory suite requirements**

i. **453.3.1**
    1. No objections
ii. **453.3.2**
    - 453.3.2 – expand on more than more tenant (change the exception)
    - The intent is the exception should be included in the statement to be included.
    - Make the statement positive. The overall suite has oversight that no two ~~uncappable~~ incompatible chemicals are used near to each other.
    - ~~Idea from Gloria Magliari- An individual laboratory suite shall have a responsible party or department for all hazardous materials within a suite.~~

    1. **Other occupancies when labs are used within**
        a. clarification of "responsible party." Idea from Gloria Magliari- replace with "An individual laboratory suite shall have a responsible party or department for all hazardous materials within a suite"
        b. It is near impossible to have an individual suite served by a single tenant. There may be more than one TI going into the suite. Perhaps there needs to be an exception for higher education.
        c. About intent, we want someone to know what is going on in that suite. Looking in to make sure materials are compatible. The intent is that there is one person looking over the whole suite.
        d. In the UC system, we have been tracking the chemicals on campus. We have chemical hygiene professionals and lab coordinators who look at compatibility. It is the language that needs to be changed
    2. Info provided – 1992 L occupancy was written/created. "Toxics" and "highly toxics" were not allowed above the third story. Universities were exempt. OSFM drove organized task group to formulate H8.
    3. Propose removal of exception. Clear up the intent. Remove the negative statement and add it to the main text. Clarify how it (the suite/lab) is being watched.

F. 453.4 Construction

- 453.4 Construction –
- Look at control area separations and correlate with the requirements

- *Laboratory suites on floors or mezzanine levels below the 4th story shall be separated from control areas by a minimum 1-hour fire ~~resistance rating~~ barrier. [REF 414 hazard control area]*

i. **453.4.1 Separation of laboratory suites**
    1. **453.4.1.1**
        a. No objections
    2. **453.4.1.2**
        a. No objections
    3. **453.4.1.3**
        a. Clarify language regarding "story" ~~and,~~ "floor" and "level" for consistency.
        b. "Horizontal assembly" versus "floor"
    4. **453.4.1.4 Horizontal separation**

a. No objections

ii. **453.4.2 Structural design occupancy category**

- 453.4.2 Structural design – clean up but do not change the intent

1. **453.4.2.1**
   a. structural engineers may not know what an occupant load is or entails
   b. K-12 schools, noting "you are doing instruction, which is in the definition. It (the code) doesn't specify those labs."
   c. proposed work group to address language clarification.
2. **453.4.2.2**
   a. No objections.

iii. **453.4.3 Fire barrier and fire-smoke barrier**

1. **453.4.3.1 Fire barrier**
   - Noted confusion between "4th floor" and "4th story" versus proposed "5th floor and above." Discussion regarding language consistency between "floor" and "story." The word "level" is also used throughout the code.
   - Discussion regarding change in systems above the 4th floor includes presence of standpipes and FD access.
   - What was the intent behind the 4th floor provisions? The 4th floor needs to be a fire barrier with smoke protection

   a. **453.4.3.1.1**
      i. No objections.
   b. **453.4.3.1.2**
      i. No objections.
   c. **453.4.3.1.3**
      i. No objections.
2. **453.4.3.2 Fire-smoke barrier**
   - The language is confusing as the code already addresses smoke barriers elsewhere.
   - Resistance rating is different than barrier. We need to clarify the language.
   - wording is confusing when the language does not correlate with chapter 7. Intent was to create firefighter safety above the 10th floor i.e.: shelter in place

   a. **453.4.3.2.1**
      i. No objections.
   b. **453.4.3.2.2**
      i. No objections.

iv. **453.4.4 Emergency response equipment area**

1. General discussion questioning dimensions of area (50 sq. ft.), decontamination procedures and necessities, and FD access requirements.
2. Noted typographical error: period absent at end of sentence
3. The area allotment poses difficulty for universities who are limited on space, not practical. Why is this needed?
4. This section is not liked. Do we need it to remain?
5. ~~is this area required on each floor? Outside each laboratory?~~ Current code states that this area needs to be outside the "Laboratory Suite". Perhaps should be changed to state that this area "shall not be located in a room or area where hazardous materials may be used or stored." Makes more sense for this area to

be located in the corridor outside of the labs then remotely and outside of the laboratory suite.

6. General questions: who uses this room? Who has access/keys?
7. Discussion should be set before local fire for comment by operations.
    a. Who is using the equipment in the room?
    b. What equipment is in there?
    c. Is it locked?
    d. This is a use of an operations plan; not a room.

v. **453.4.5 Liquid tight floor**

1. Look at spill control and secondary containment provisions

453.4.5 Liquid tight floor. All portions of the laboratory suite where hazardous materials may be present shall be provided with a liquid tight floor. ~~Where the floor is designed to provide spill control or secondary containment the floor shall be designed in accordance with California Fire Code Section 5004.2.~~

vi. **453.4.6 Emergency power**

- emergency power Legally required Standby Power
    - -Add 10 second start up time
    - Add emergency elevator
- Add emergency radio
- Any system that creates a hazard
- This provision makes a huge jump from a B occupancy
- In some ways, this creates more restrictive provisions to an H
- Can we make this more scalable?
- This will be a subgroup

1. **453.4.6.1 Required systems**
    a. Noted to be a safety branch off true emergency power. Would like to lobby to make it a legally required standby system. Explained that one cannot combine life safety system power with any other system(s), that a separate branch and power supply are needed.
    b. consider addition of language regarding generator start-up time requirements.
    c. Would like to add two items to the current list – elevators, radio communication.
    d. Why is egress lighting here? Redundant code language.
    e. General: Shouldn't all systems be included here? Anything that will cause a life safety hazard if it were to shut down?
    f. Can we create something more scalable? A solution that makes laboratories safer than a B? Wasn't L supposed to be between a B and an H occupancy?

vii. **453.4.7 Ventilation**

1. **453.4.7.1 Compatibility**
    a. Does the Mechanical Code speak to combability? Can we reference that here?
        - CMC 505 reference

2. **453.4.7.2 Fire dampers, smoke dampers and combination fire/smoke dampers**
    - Dampers kept open
    - Clean up language for plan review streamlining (NFPA 45 reference)
    - Shall be engineered
    - Will be a sub group -

    a. Synopsis of 505, duct materials. Consider referencing California Mechanical Code directly.
    b. This is an issue that should be addressed during plan review.
    c. Saunders spoke of the air flow method utilized by IC Irvine.
    d. The idea is that the migration of fumes and mists doesn't exceed laboratory. UC Berkeley uses gravity dampers. Keeping pressure in lab lower than outside. Shutdowns are a disserve to occupancy.
    e. How does this relate to smoke zone and smoke control?
    f. This equipment gets complicated in high-rise with a smoke control requirement.
    g. Saunders explains there exists a smoke layer to the top of sash line and gone, smoke is sucked in. It becomes safe enough for FD to enter and exit. It depends on fume hoods. So, negative when shutdown supply airs. Air flow allows ramp down without migrating to neighboring area.
    h. "Product conveying" has different meanings between CBC and CMC. Must define it.
    i. Using reference of NFPA 45, "fume hoods?"
3. **453.4.7.3 Duct materials**
    a. No objections.
4. **453.4.7.4 Laboratory suite exhaust air**
    a. #1, no objections
    b. #2 discussion
        i. What about an occupied roof?
        ii. We would go to the Mechanical Code.
        iii. What about lab suites in B Buildings?
        iv. Termination points have been discussed already.
        v. What is going into sub ducts? explained that ducts require separate ducting to avoid mixing/causing reactions in ducts. It is a safe way to exhaust individual floors. Sub ducts are most practical.
        vi. What about smoke dampers?
        vii. Neighboring use/occupancy?
5. **453.4.7.5 Ventilation rates**
    a. This topic will require further discussion.
6. **453.4.7.6 Mechanical ventilation systems on emergency power**
    a. No objections
7. **453.4.7.7 Mechanical ventilation system balancing**
    a. This is a design issue.
    b. Doesn't this negate the smoke dampers from the prior section? This language needs clean-up.
    c. Reference to Section 1008.1.3 incorrect.

G. 453.5 Fire protection systems

- Ordinary protection vs density?

903.2.16 Group L occupancies. An automatic sprinkler system shall be installed throughout buildings housing Group L occupancies. Sprinkler system design for research laboratories and similar areas of a Group L occupancy shall not be less than that required for Ordinary, Hazard Group 2 with a design area of not less then 3,000 square feet (279 m^2).
In mixed occupancies, portions of floors or buildings not classified as Group L occupancies shall be provided with sprinkler protection designed of not less than that required for Ordinary Hazard Group / with a design area of not less than 3.000 square feet (279 m^2).

903.2.16.1 Group L occupancies located above the 10th story. The automatic sprinkler system shall be designed and zoned to provide separate indication upon water-flow for each side of the 2-hour fire-smoke barrier above the 10th story.

H. 453.6 Means of egress

- Add a reference to common path of travel
- ***453.6.4 Buildings ~~more than four stories~~.*** *A minimum of one exit access shall be provided to serve the floor on each side of the 2-hour fire barrier and shall comply with the provisions of Chapter 10.*

- Is this talking about exit access?
    - Provide consistency with the 4th story / floor

- What is the purpose of the 2-hour fire barrier?
    - *453.4.3.1 Fire barrier. A fire barrier having a fire resistance rating of not less than 2-hours shall divide any story containing more than one laboratory suite above the 4th story.*

1. **453.6.1 Access to exits**
    a. No objections.
2. **453.6.2 Door swing**
    a. No objections.
    b. General: add reference to common path of travel?
3. **453.6.3 Panic hardware**
4. **453.6.4 Buildings more than four stories**
    a. Andersen: "Stories" versus "floor" language, consistency. Also use of the the term "level".
    b. Andersen: We need to address floor compartmentalization and consider that it is surrounded by rated walls.
5. **453.6.5 Corridors**
    a. General note to research referenced codes.
    b. Correct section reference

I. 453.7 Hazardous materials

- review to fire code provision
- move to front of section after scope

1. **453.7.1 Technical support**
    a. ensure this language hasn't changed with the new CFC provisions.
    b. consider moving this language below Scope.
2. **453.7.2 Multiple hazards**
    a. No objections.
3. **453.7.3 Percentage of maximum allowable quantities**
    a. Why don't we reference control areas here? MAQs.
    b. It is unrelated, its adjacency. Maybe add a code reference and where to find that information.
    c. **453.7.3.1 – Table**
        - Review and submit a proposal for L above the 20th floor
        - Compare H to L for the upper floors
        - height and area table does not allow H above 20th floor
4. **453.7.4 Handling and transportation**
    a. No objections.
5. **453.7.5 Transportation of hazardous materials above the 10th story**
    a. Look at operations
    b. check the code references.

J. **453.8 Elevators and elevator lobbies above the 10th story**

- The more we can compartmentalize the L occupancy that seems to be a safer solution to putting the horizontal separation. (very prescriptive)
- The intent was to be able to leave the area to a safer area.
- Calling for an equal or better to an exit – create some performance based language to include as an exception.

1. **check the code references.**
2. **453.8.1**
    a. No objections.
3. **453.8.2**
    a. No objections.
4. **453.8.3**
    a. Do we need to consider pressurization?
    b. General comment regarding the practice of L occupancies being considered entire floor areas.

K. **453.9 – no comments**

Future meeting – August 22, 2017 at 1300